IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Koved et al.** §	
§	Group Art Unit: **2131**
Serial No. **10/002,439** §	
§	Examiner: **Abrishamkar, Kaveh**
Filed: **November 1, 2001** §	
§	
For: **Method and Apparatus for Type** §	
Independent Permission Based Access §	
Control	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

35525
PATENT TRADEMARK OFFICE
CUSTOMER NUMBER

REPLY BRIEF (37 C.F.R. 41.41)

This Reply Brief is submitted in response to the Examiner's Answer mailed on July 28, 2006.

No fees are believed to be required to file a Reply Brief. If any fees are required, I authorize the Commissioner to charge these fees which may be required to IBM Corporation Deposit Account No. 09-0447.

ARGUMENT

I.   REPLY TO EXAMINER'S ANSWER

I.A   Claims 1-2, 4, 7, 9-12, 14, 19-22, 24, 27, and 29-30

Regarding claims 1-2, 4, 7, 9-12, 14, 19-22, 24, 27, and 29-30, the Examiner states that:

> The Examiner contends that a "superclass" as defined in the Applicant's application, is a base permission which is defined along with inherited, or subclass permissions that fall below the base permission in a hierarchy of permissions. Gong discloses a hierarchy of permissions as well, with the permission superclass being the highest permission on the hierarchy tree (column 6 lines 27-35). Furthermore, the permissions which encompass the permissions below them, can be interpreted as "super classes" of the permissions they encompass. Based on this definition of super class, Gong discloses, "if every associated protection domain contains a permission object that represents a permission encompassing the required permission, then the request action is authorized" (column 19 lines 26-30). The "permission encompassing the required permission" is interpreted as being the superclass, as it is a higher permission as it "encompasses" the required permission. Furthermore, if this superclass permission of the required permission is contained in "every associated protection domain" is analogous to the superclass permission of a required permission being present in each protection domain of the claim 1. Furthermore, the access control context is analogous to authorizing an action, as it is granting access to perform a certain action. Therefore, it is asserted that Gong meets every aspect and limitation of the above claim limitation.

Examiner's Answer dated July 28, 2006, pp. 5-6.

In this Examiner's Answer, the same flawed interpretation of encompassing permission in *Gong* is present. In the Appeal Brief, Appellants have already explained why *Gong's* encompassing permissions are not the same as superclass permissions as recited in the claims. That explanation is accompanied by sections from *Gong's* disclosure that support the distinctions drawn between an encompassing permission and a superclass permission as explained by the Appellants. That explanation is not repeated here again for the sake of brevity. The Examiner's Answer continues to be based upon the flawed interchanging of *Gong's* encompassing permission for the superclass permission recited in the claims.

The Examiner, however, has cited the following additional sections of *Gong's* disclosure in the Examiner's Answer:

> As shall be described in greater detail hereafter, a "permission super class" is established from which subclasses may be created. Objects that belong to subclasses of the permission super class represent permissions, and are therefore

referred to as permission objects. The permission subclasses inherit the methods and attributes of the permission super class, including a validation method. Each permission subclass provides an implementation of the validation method.

Gong, col. 6, ll. 27-35.

In this paragraph, *Gong* simply describes that a permission superclass follows the object oriented methodology. *Gong* describes the use of inheritance in object oriented technology to create hierarchies of superclass and subclass permissions. However, this paragraph and the remainder of *Gong's* disclosure, does not lend any support or incentive for the Examiner's interchanging of an encompassing permission for a superclass permission. As explained in the Appeal Brief, *Gong* defines superclass in terms of commonly known object oriented hierarchy of classes. In a typical superclass-subclass hierarchy, the methods and attributes of a superclass may be inherited and modified by a subclass that derives from the superclass. According to *Gong*, a permission encompassing the required permission simply means a larger permission that "encompasses" or inherently includes a smaller permission, but not a "superclass" permission in the hierarchy of permissions classes.

In a superclass-subclass hierarchy, the attributes and methods of the superclass can be defined in mutually exclusive ways in one or more child subclasses. This property of a superclass entity is different from *Gong's* notion of an encompassing entity. For example, a permission P1 to withdraw $300 encompasses a permission P2 to withdraw $200. However, this does not mean that a parent permission P that provides for only a number and an activity associated with that number "encompasses" the child permission number representing $300 and the action representing the withdrawal thereof, within the context of *Gong*. This example shows inheritance, but not "encompassing" as *Gong* describes the term. *Gong* specifically uses the term "encompass" and not superclass to indicate this difference, as is evident from the following section in *Gong*:

One permission can imply another. When one permission implies another permission, that one permission is said to encompass the other permission. For example, a permission to write to a directory, such "c:/", can imply a permission to write to any file in the directory, such as "c:/thisfile". Furthermore, an attribute of a permission can imply an attribute of another permission. For example, in some implementations, the action attribute of a permission to "write" implies an action attribute of a permission to "read". An amount attribute of a permission to withdraw three hundred dollars implies another attribute of a permission to withdraw two hundred dollars.

> Usually, a permission encompasses another permission when all the permission attributes of one permission imply all the corresponding permission attributes of another permission. For example, a permission to "write" to file "d:/somefile" implies a permission to "read" from file "d:/somefile" because a "write" implies a "read". However, a permission to "write" to file "d:/somefile" does not imply a permission to "read" from file "d:/otherfile" because "d:/somefile" does not imply "d:/otherfile".

Gong, col. 7, ll. 30-50

Gong teaches that when a first permission "implies" a second permission, the first permission encompasses the second permission. This express statement in *Gong* describes what *Gong* means by permission encompassing the required permission. The statement makes clear that *Gong* does not mean a permission superclass, or superclass permission as defined in Appellants' specification, to be a permission encompassing the required permission. (Specification p. 18, ll. 6-17).

The limited description in the new paragraph cited in the Examiner's Answer, which only states that permissions can be organized into object oriented hierarchies, is not sufficient for concluding that encompassing permission and superclass permission are one and the same. Therefore, Appellants maintain that *Gong* does not teach the features, "determining if a *superclass permission* of a required permission is present in each protected domain of an access control context, wherein the superclass permission is a *super class* of the required permission", and "adding the required permission to a permission collection if the superclass permission of the required permission is present in each protection domain of the access control context" as recited in claim 1. Consequently, *Gong* does not teach all the features of claim 1 as recited, and does not anticipate claims 1-2, 4, 7, 9-12, 14, 19-22, 24, 27, and 29-30 under 35 U.S.C. § 102(b).

I.B   Claims 3, 13, and 23

Regarding claims 3, 13, and 23, the Examiner states that:

> The Examiner contends that Gong teaches determining which encompassing permission (superclass permission) contains the required permission for the action (column 18 lines 37-45). If the encompassing permission (superclass permission) of the required permission is present in every protection domain, then access is authorized for the action (column 18 lines 37-45). Therefore, the Examiner respectfully asserts that Gong does teach determining the superclass permission of the required permission based on the required permission.

Examiner's Answer dated July 28, 2006, p. 6.

The Examiner's Answer continues to rely upon the flawed interchanging of *Gong's* encompassing permission for the superclass permission as recited in claim 3. The flaw in the Examiner's

reasoning has been fully addressed in the pending Appeal Brief in this case. The Examiner has simply reiterated that flawed interpretation and cited to the same sections of *Gong* that have been addressed in the Appeal Brief. Thus, no further argument is necessary because *Gong* does not teach the feature, "determining the superclass permission of the required permission based on the required permission" recited in claim 3 as previously explained. Consequently, *Gong* does not anticipate claims 3, 13, and 23 under 35 U.S.C. § 102(b).

I.C   Claims 5, 15, and 25

Regarding claims 5, 15, and 25, the Examiner states that:

> The Examiner contends that Gong teaches creating a new permission collection and adding the required permission to the new permission collection. Gong teaches, "when a new category of permissions is desired, a new subclass is created" (column 19 lines 36-38). The new subclass is analogous to the permission collection because it contains different permissions. Furthermore, Gong teaches that "the particular rules or policy that govern whether the permissions granted a principal are encompassed by permission in the new category are implemented in the validation method of the new subclass representing permissions in the new subclass" (column 19 lines 39-43). The validation method is responsible for checking if the required permission that has been added to the new subclass, is encompassed by a permission in the new category. Furthermore, if a new subclass is being created, based on Gong's inheritance principals (column 6 lines 31-35), the permissions would be passed down from the superclass down to the subclasses, so the required permissions would be added to the subclasses (permission collections).

Examiner's Answer dated July 28, 2006, p. 7.

The Examiner's Answer cites to the following section in *Gong* for support:

> Typed permissions facilitate the establishment of new permissions. When a new category of permissions is desired, a new subclass is created.

Gong, col. 19, ll. 36-38.

The submitted Appeal Brief quotes this section and provides the analysis of *Gong's* teachings contained therein on page 24 under the Argument section, subsection C. The citation to the *Gong's* section quote is incorrect on the Appeal Brief page 24. The citation should read, "*Gong*, col. 19, ll. 32-43," instead of "*Gong*, col. 19, ll. 38-43."

As can be seen, that section of the Appeal Brief provides the analysis of the section of *Gong* that is inclusive of the section cited in the Examiner's Answer above. Furthermore, the Examiner's Answer reiterates a second flawed interpretation of *Gong*, which Appellants have already addressed in the Appeal Brief. The Examiner incorrectly asserts now, as the Examiner had incorrectly asserted in the final office action, that a new subclass in *Gong* is analogous to a new permission collection as claimed. As described

in the Appeal Brief, *Gong* does not support the Examiner's analogy. Therefore, no new arguments are presented in the Examiner's Answer as to the anticipation of claims 5, 15, and 25 as to this analogy.

The Examiner had cited the following section in rejecting claims 6, 8, 16, 18, 26, and 28 in the final office action. This section has now been cited against claims 5, 15, and 25 in the Examiner's Answer:

> The domain mapper object 448 contains a mapping between classes and protection domains objects. Protection domain objects 482 contain a set of permissions. Protection domain objects are associated with the permission objects they contain, and with the classes to which a protection domain object is mapped to by domain mapper object 448.
>
> Protection domain objects 482 are created when new classes are received by code executor 410. When a new class is received, domain mapper 448 determines whether a protection domain is already associated with the code source. The domain mapper maintains data indicating which protection domains have been created and the code sources associated with the protection domains. If a protection domain is already associated with the code source, the domain mapper adds a mapping of the new class and protection domain to a mapping of classes and protection domains maintained by the domain mapper 448.
>
> If a protection domain object is not associated with the code source of the new class, a new protection domain object is created and populated with permissions. The protection domain is populated with those permission that are mapped to the code source of the new class based on the mapping of code sources to permissions in the policy object. Finally, the domain mapper adds a mapping of the new class and protection domain to the mapping of classes and protection domains as previously described.

Gong, col. 16, l. 56 – col. 17, l. 13.

The Examiner asserts that this section of *Gong* teaches, "creating a new permission collection and adding the required permission to the new permission collection" feature of claim 5. The Appeal Brief contains the analysis of this section of *Gong* as to claims 6, 16, 26, and 8, 18, 28 in the Arguments section, subsections D and E respectively. Whether this teaching can be interpreted as teaching the claimed feature is irrelevant because Appellants have shown that *Gong* does not anticipate claim 5 at least by virtue of its dependence from claim 1. Therefore, Appellants maintain that *Gong* does not anticipate claims 5, 15, and 25 under 35 U.S.C. § 102(b).

The Examiner further cites to *Gong* column 6, lines 31-35, analyzed above. Using the fact about inheritance in object oriented technology stated in this section of *Gong*, the Examiner makes the following statement:

> Furthermore, if a new subclass is being created, based on Gong's inheritance principals (column 6 line 31-35), the permissions would be passed down from

the superclass down to the subclasses, so the required permissions would be
added to the subclasses (permission collections).

This statement is not logical for two reasons. First, the Examiner proceeds from the reasoning that creation of a permission collection is the same as creation of a subclass. Arguments in the Appeal Brief describe the flaw in this reasoning. Second, the Examiner suggests that based on the inheritance principle, "permissions would pass down from the superclass down to the subclasses". In an object oriented hierarchy, the superclass contains attributes and methods common among the subclasses derived from the superclass. Each subclass can add attributes and methods not present in the superclass, or can redefine methods of the superclass in ways that are mutually exclusive with other subclasses. This commonly understood principle of object oriented methodology is supported by *Gong's* own disclosure as follows:

> As shall be described in greater detail hereafter, a "permission super class" is established from which subclasses may be created. Objects that belong to subclasses of the permission super class represent permissions, and are therefore referred to as permission objects. The permission subclasses inherit the methods and attributes of the permission super class, including a validation method. Each permission subclass provides an implementation of the validation method.

Gong, col. 6, ll. 27-35.

Permissions objects are based on the various subclasses created from the superclass. This fact is also supported by *Gong's* disclosure above. Therefore, according to the Examiner's reasoning, permissions based on subclasses will be added to other subclasses. Ignoring the first identified flaw in this reasoning momentarily, even if the Examiner's argument were to be true, it is the objects of other subclasses (permissions) that would be passing down to the subclasses, and not objects of other subclasses (permissions) from a superclass passing down to the subclasses. An object of a subclass cannot be present in a superclass so that it may be passed down to another subclass. Furthermore, an object of the superclass cannot have any mutually exclusive definitions for any of the object's contents with those of subclass contents, whereas, objects of a different subclass can. Therefore, the Examiner's reasoning that, "permissions would pass down from the superclass down to the subclasses" is logically incorrect for this additional reason.

Therefore, the Examiner's Answer fails to present any new arguments based on *Gong's* disclosure that support anticipation rejection of claim 5. Consequently, *Gong* does not anticipate claims 5, 15, and 25.

I.D   Claims 6, 8, 16, 18, 26, and 28

Regarding claims 6, 16, and 26, the Examiner states that:

> Gong teaches, "when a new category of permissions is desired, a new subclass is created" (column 19 lines 36-38). This new subclass is analogous to the new permission collection because it contains different permissions. Furthermore, Gong teaches that "the particular rules or policy that govern whether the permissions granted a principal are encompassed by permission in the new category are implemented in the validation method of the new subclass representing permissions in the new subclass" (column 19 lines 39-43). The validation method is responsible for checking if the required permission that has been added to the new subclass, is encompassed by a permission in the new category. Furthermore, if a new subclass is being created, based on Gong's inheritance principals (column 6 lines 31-35), the permissions would be passed down from the superclass down to the subclasses, so the required permissions any subclass permissions which encompass the new subclass would be added to the new subclass (permission collection).

Examiner's Answer dated July 28, 2006, p. 8.

The Examiner's Answer continues to rely upon the two flaws already discussed. The Examiner's reasoning is flawed because creation of a subclass in *Gong* is not the same creation of a permission collection as claimed. The Examiner's reasoning is also flawed because *Gong's* encompassing permission is not interchangeable with the superclass permission as recited in claim 6. These flaws in the Examiner's reasoning have been fully addressed in the pending Appeal Brief in this case, and are not re-analyzed here for the sake of brevity.

The Examiner additionally relies on the reasoning of the Examiner's Answer addressed in section I.C above, against claims 6, 8, 16, 18, 26, and 28 as well. Examiner's argument there – permissions would be passed down from the superclass down to the subclass - has been demonstrated to be an incorrect conclusion from *Gong's* disclosure. The analysis of the Examiner's Answer in section I.C above is similarly applicable here. Because the Examiner raises no new argument in the Examiner's Answer that has not already been fully analyzed before, no further arguments are necessary on the part of the Appellants. Therefore, Appellants maintain that *Gong* does not teach the feature, "adding any subclass permissions of the required permission to the new permission collection" recited in claim 6. *Gong* also does not teach the feature, "adding the permission to a permission collection associated with the superclass permission" as recited in claim 8 for the same reasons. Consequently, *Gong* does not anticipate claims 6, 8, 16, 18, 26, and 28 under 35 U.S.C. § 102(b).

II. **SUMMARY**

The reference cited by the Examiner does not anticipate claims 1-30 under 35 U.S.C. § 102(b). For this reason, Appellants respectfully request that the rejections be overturned and the claims allowed.

/Rakesh Garg/
Rakesh Garg
Reg. No. 57,434
YEE & ASSOCIATES, P.C.
PO Box 802333
Dallas, TX 75380
(972) 385-8777